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<tr>
<td>ABR</td>
<td>Antibiotic Resistance</td>
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<tr>
<td>Africa CDC</td>
<td>Africa Centres for Disease Control and Prevention</td>
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<td>AMR</td>
<td>Antimicrobial resistance</td>
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<td>AMS</td>
<td>Antimicrobial stewardship</td>
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<td>ARC</td>
<td>Antibiotic Resistance Coalition</td>
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<td>ASPIC</td>
<td>Antibiotic Stewardship and Prevention of Infection in Communities</td>
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<td>AU</td>
<td>African Union</td>
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<td>CARB-X</td>
<td>Combating Antibiotic-Resistant Bacteria Biopharmaceutical Accelerator</td>
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<td>CIDRAP</td>
<td>Center for Infectious Disease Research and Policy</td>
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<td>CSO</td>
<td>Civil Society Organization</td>
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<td>DHF</td>
<td>Dag Hammarskjöld Foundation</td>
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<td>EAC</td>
<td>East African Community</td>
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<td>ECDC</td>
<td>European Centre for Disease Prevention and Control</td>
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<td>ECOWAS</td>
<td>Economic Community of West African States</td>
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<td>EPN</td>
<td>Ecumenical Pharmaceutical Network</td>
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<td>EU</td>
<td>European Union</td>
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<td>FAO</td>
<td>Food and Agriculture Organization of the United Nations</td>
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<td>GARDP</td>
<td>Global Antibiotic Research and Development Partnership</td>
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<td>IACG</td>
<td>United Nations Interagency Coordination Group on Antimicrobial Resistance</td>
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<td>IAEG-SDG</td>
<td>United Nations Interagency Expert Group on Sustainable Development Goals</td>
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<td>ILRI</td>
<td>International Livestock Research Institute</td>
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<td>IPC</td>
<td>Infection Prevention and Control</td>
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<td>JAC</td>
<td>Journal of Antimicrobial Chemotherapy</td>
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<td>JPIAMR</td>
<td>The Joint Programming Initiative on Antimicrobial Resistance</td>
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<td>LMICs</td>
<td>Low- and Middle-Income Countries</td>
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<td>M&amp;E</td>
<td>Monitoring and Evaluation</td>
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<td>MOH</td>
<td>Ministry of Health</td>
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<td>MPTF</td>
<td>Multi Partner Trust Fund</td>
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<td>MSF</td>
<td>Médecins Sans Frontières</td>
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<td>NAP</td>
<td>National Action Plan on AMR</td>
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<td>NASIC</td>
<td>National Antimicrobial Stewardship Interagency Committee</td>
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<td>World Organisation for Animal Health</td>
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<td>PSA</td>
<td>Pharmaceutical Systems Africa</td>
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<td>R&amp;D</td>
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<td>RBM</td>
<td>Results-Based Management</td>
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<td>SADC</td>
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<td>Swedish Krona</td>
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<td>Swedish International Development Cooperation Agency</td>
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<td>TORs</td>
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<td>UHC</td>
<td>Universal Health Coverage</td>
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<td>United Nations Development Programme</td>
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<td>UNFPA</td>
<td>United Nations Population Fund</td>
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<td>UNGA</td>
<td>United Nations General Assembly</td>
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<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
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<td>United States</td>
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<td>USD</td>
<td>United States Dollars</td>
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<td>USIU-A</td>
<td>United States International University-Africa</td>
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<td>WAAW</td>
<td>World Antibiotic Awareness Week</td>
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<td>WASH</td>
<td>Water, Sanitation and Hygiene</td>
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<td>WHA</td>
<td>World Health Assembly</td>
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<td>WHO</td>
<td>World Health Organization</td>
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<td>WHO SEARO</td>
<td>World Health Organization South-East Asia Regional Office</td>
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Selected Highlights from 2019

2019 was a remarkable year of work on antibiotic resistance (ABR). The United Nations (UN) Interagency Coordination Group (IACG) on Antimicrobial Resistance (AMR) concluded its mandate and presented their final report ‘No Time to Wait: Securing the Future from Drug-Resistant Infections’, to the UN Secretary-General. The Secretary-General’s report “Follow-up to the political declaration on the high-level meeting of the General Assembly on AMR” was then issued and delivered to Member States. An AMR-specific indicator to track progress on the Sustainable Development Goals (SDGs) was endorsed and reached a key milestone in 2019. In the same year, the UN General Assembly (UNGA) high-level meeting on Universal Health Coverage (UHC) adopted a political declaration which included a paragraph specifically on AMR. A significant portion of ReAct’s global and regional efforts were related to these political processes.

2019 was the first year of implementing ReAct’s new Strategic Plan. While adapting to the emerging opportunities and increasing momentum around ABR issues, ReAct’s work was summarized around four Strategic Objectives: 1) National Action Plans, 2) Movement Building, 3) Globally Coordinated Governance, and 4) Public Health-Driven Innovation.

Strategic objective 1 - National Action Plans (NAP) implementation

ReAct’s work around NAP on AMR progressed from supporting the development of NAPs to supporting their implementation in Low- and Middle-Income Countries (LMICs), as well as at regional levels through institutions such as the Southern African Development Community (SADC). In Africa and India, that work included providing expert advice to governments and regional offices of international organisations like the World Health Organization (WHO). In Latin America, ReAct continued to support community-led approaches to NAP implementation in the Andean region. Drawing on ReAct’s LMIC experiences, ReAct guided the development of civil society feedback on the IACG recommendations through the Antibiotic Resistance Coalition (ARC) - a civil society coalition of 27 organisations from the global north and south. Broader civil society engagement was evident in the NAP implementation process at regional, country and community levels. ReAct also received increasing requests from governments, professional, and civil society networks for technical support to advance the NAP implementation, making steady progress towards long-term and medium-term outcomes under Strategic Objective 1.

The ReAct Toolbox now has 150 000 unique visitors and is widely used across Africa and Asia. Its quality and user-friendliness was applauded in a peer-reviewed evaluation published in the the Journal of Antimicrobial Chemotherapy (JAC) - AMR.

Strategic objective 2 - Movement building

AMR and UHC

For the UNGA High level meeting in September 2019 on UHC, ReAct’s advocacy included the development and distribution of a policy brief on AMR and UHC to country officials in New York and Geneva. ReAct was pleased to see that language on AMR was included in the final political declaration on UHC.

The 2019 ReAct Africa Annual Conference themed “Achieving Universal Health Coverage while addressing Antimicrobial Resistance” gathered over 120 multi-sector participants from 31 African countries. The conference report was shared with our Civil Society Organization (CSO) partners and African governments. The messaging on UHC and ABR was complemented and reinforced by the WHO, governments and the ReAct Africa network. These key stake-
holders expressed renewed momentum with great engagement and deeper understanding on how AMR affects global efforts in UHC as well as SDGs.

Catalyzing and sustaining partnerships
Through the lens of ‘antibiotic smart’ farms and communities, ReAct initiated new, and continued existing collaborations, with civil society and government partners across Asia, Africa and Latin America. As a result, ReAct observed exciting developments in the South East Asian region involving the work of partners, including a government financed ‘AMR smart’ project with ReAct’s partners in Malaysia. In Kerala, India, the ‘Kochi Declaration on One Health action on ABR’ was adopted and endorsed by the presidents of the medical, dental and veterinary associations. In Kenya, a pilot programme to promote better farming practices that reduces the use of antibiotics in dairy farming was established with the Kenyan Ministry of Agriculture and the World Organisation for Animal Health (OIE). In Latin America, ReAct hosted the second international summit ‘Mother Earth, One Health’, bringing together more than 300 participants from civil society from the whole Andean region.

ReAct has also continued activities to foster future champions of AMR including by increasing to 18 student clubs on AMR at universities in India and Kenya, and through the global student competition Innovate4AMR, that ReAct has been co-organising annually with the WHO since 2018.

Strategic objective 3 - Global governance
2019 was an important year for outlining AMR global governance structures. A milestone was reached when an AMR-specific indicator within the SDG framework was adopted (in early 2020), something ReAct has been working towards for many years. At the global level, ReAct led the development of multiple consultations and joint civil society statements on relevant policy processes such as the IACG consultations, including through ARC. ReAct also contributed to the development of the Tripartite’s Monitoring and Evaluation (M&E) framework for the Global Action Plan on AMR.

ReAct co-organized a roundtable discussion with the Dag Hammarskjöld Foundation (DHF) and included the following UN agencies: United Nations Children’s Fund (UNICEF), United Nations Development Programme (UNDP) and the United Nations Population Fund (UNFPA). The primary aim of this meeting was to strengthen relationships and identify areas for further engagement, particularly around the IACG recommendations, NAP implementation and global governance.

With co-funding from the South Centre and the Third World Network, the annual ARC strategy meeting brought together more than 30 participants representing CSOs across five continents to discuss AMR policy and coordinated civil society efforts.

Regional governance structures
Engagement with the European Union (EU) continues to be important for ReAct, where the aim is to ensure global perspectives are included in the EU’s work on AMR. ReAct has submitted responses to public consultations towards this end. ReAct was also invited to provide expert advice at a high level meeting in March 2019 organised by the Romanian Presidency, and have subsequently, in early 2020, been able to secure a high level meetings with the new Commission to discuss global efforts on AMR and the need to include LMICs in global policy processes.
The newly established African Union (AU) Centers for Disease Control and Prevention (Africa CDC) offered ReAct an advisory role to identify how African-based CSOs can advance implementation of the Africa CDC AMR Framework. This has led to increased requests to ReAct from other regional actors such as SADC for support.

Financing
ReAct has been advocating for increased AMR financing including the establishment of a Multi Partner Trust Fund (MPTF) on AMR. In February 2019, ReAct launched a report on the SDGs and AMR which made a range of recommendations on highlighted and addressed concerns around AMR financing. This report was featured in leading AMR newsletters and websites and shared with Permanent Representatives in Geneva and Rome. Together with the SDG report and the finance meeting report, ReAct engaged with country officials and UN country missions in New York, Geneva and Rome and advocated for AMR as a development issue that needs investments on developing stronger systems for healthcare, agriculture and food production.

Strategic objective 4 - Public health driven innovation

Social innovation to reduce and improve antibiotic use in LMICs
ReAct continued to develop the Alforja Educativa, an educational package aimed at children, which is being transformed into an online training course (expected launch 2020). The Alforja was for the first time implemented outside Latin America, as it was adapted and piloted in two counties in Kenya. Four schools with 1,000 children, 800 households and eight community health workers were involved and the project has received early positive feedback from the school teachers and community health workers.

Antibiotic Smart Communities
This project has so far been successful in creating a large pool of local Indian experts on AMR and has explored innovative community-engagement methods like an antibiotic take-back campaign. A similar campaign has been adopted by the state government and the All Kerala Chemists and Druggists Association and has to date managed to collect over five tonnes of medicines.

Policy innovation to reduce and improve antibiotic use in LMICs
With a number of antibiotic producing companies going bankrupt in 2019, the need for alternative public health driven research and development (R&D) approaches that serve the public’s interest has never been greater – including securing affordable access for everyone in need. In 2019 ReAct advocated for such an alternative towards relevant actors such as IACG, the WHO, the Global Antibiotic Research and Development Partnership (GARDP), the European Investment Bank, the Novo Repair Fund, Combating Antibiotic Resistant Bacteria (CARB-X), the European Commission and the Wellcome Trust. ReAct also published a policy brief ‘Public health principles to ensure sustainable access to novel antibiotics’ in October 2019, which received interest and feedback from the WHO, GARDP, the United Kingdom (UK) National Institute for Health and Care Excellence (NICE) and the Wellcome Trust.

Organizational development
In the first program year under the new Strategic Plan, work was conducted to ensure the Strategic Objectives and Outcomes were internalized by staff and that project activities and ways of working were continuously aiming towards these objectives. Overall, the new strategic period has gotten off to a good start, and other structural components such as improved Results-Based Management (RBM), a focus on diversifying the funder base and an increased focus on gender, have contributed to making ReAct a stronger organization.
Countries develop and implement National Action Plans with respect to sustainable access to effective antibiotics, that are inclusive of civil society, local community views and based on situational analyses with ReAct’s support.
Project 1. National Action Plan (NAP) implementation and formation of a framework for action

Drawing upon partnerships and networks established over the years, ReAct continued its support of NAPs on Antimicrobial Resistance (AMR), as countries are finalizing their plans and entering the implementation phase. In 2019, ReAct’s work on NAPs included contextualized technical support to different One Health sectors; convening stakeholders through workshops; coordination and technical support for Civil Society Organization (CSO) involvement in NAP implementation, as well as support through the ReAct Toolbox. In 2019, broader civil society engagement was evident in the NAP implementation process at regional, country and community levels. ReAct also received increasing requests from governments, professional, and civil society networks for technical input to advance NAP implementation (making steady progress towards long-term and medium-term outcomes under Strategic Objective 1). Due to budget cuts, the analytical modelling work for framework conceptualization and its corresponding budget line were cancelled.

NAP country support in Africa

ReAct was able to provide substantial support to three African countries (Kenya, Zambia and Malawi) in NAP implementation. In line with countries’ priorities in developing guidelines as a first step for NAP implementation, ReAct put a focus on assisting countries in the development of national antimicrobial stewardship (AMS) guidelines and their adoption at county and community levels. Through a consultative and stepwise approach, ReAct was instrumental in forming multi-stakeholder coordination groups with cross-sectoral representations from relevant institutions to ensure ownership and commitment, followed by ReAct’s technical support to these groups, reviewing and inputting to situational analyses and plans.

In Kenya, ReAct continued to be a trusted partner to the Ministry of Health (MOH) to provide technical support and was actively engaged in convening AMS meetings with over 30 key stakeholders to validate the Kenyan National AMS guidelines. These meetings and support efforts led to the finalization of Kenyan AMS guidelines in October 2019. ReAct also worked on an agreement to support Makueni County and the MOH to pilot an AMS program, as part of the NAP stewardship efforts. As an immediate result, ReAct was requested to continue to support AMS work including a baseline study in Makueni County in 2020. In addition, ReAct continued to participate as a member of the National Antimicrobial Stewardship Interagency Committee (NASIC) and to attend meetings including a Fleming Fund meeting with NASIC Kenya to review the Fleming Fund request for proposals to support AMR Surveillance in Kenya.

In Zambia, following the facilitation of an AMS workshop for healthcare workers in December 2018, ReAct Africa continued work in supporting Zambia to develop a National AMS Policy and Framework for implementation. This included development of Standard Treatment Guidelines for common infections.
led by the University Teaching Hospital. Pilot health facilities were selected, including four public hospitals and one private hospital. The policy documents were drafted and are expected to be reviewed by the MoH and for the legislative process of adoption in 2020. Additionally, in collaboration with the Centre for Science and Environment and the Zambia National Public Health Institute, ReAct supported the development of the Integrated One Health Surveillance Framework as part of the NAP efforts to develop and implement a One Health Surveillance Policy strategy, which is expected to be launched in 2020.

In Malawi, following the launch of the AMR strategy in 2018 that was developed with support from ReAct and themed “Towards a world free from fear of untreatable infections”, ReAct actively engaged with Malawi in 2019 to come up with practical approaches to operationalize the AMS strategy. ReAct was, however, not able to meet a request for financial support from the MOH to support the proposed AMS program in government hospitals, as the costs were very high and could not be accommodated within the current budget. However, awareness raising is a key priority in Malawi’s current AMR strategy and Malawi actively used media in AMR awareness, e.g. investigative journalism on real life stories. ReAct supported the AMR focal person to attend the ReAct Africa Annual Conference in July to exchange ideas on how they made progress in NAP implementation with emphasis on raising awareness through real life stories and shared learning with other countries in similar contexts. In addition, Malawi benefited from ReAct’s newsletters, ReAct’s Toolbox and a featured interview of the AMR Focal Point on BBC.

At the sub-regional level, ReAct was invited to engage in a scoping study to evaluate the “progress of activities to contain antibiotic resistance (ABR) and the support needed from regional intergovernmental organizations in the Southern African Development Community (SADC) region”. ReAct was then selected to develop a Framework for SADC AMR NAP Implementation to guide countries in the region. In December 2019, ReAct facilitated a Joint Technical Committee of SADC Member States meeting in Johannesburg on the development of the AMR NAP Implementation Framework and shared the results of the scoping study. These activities commenced in the second half of 2019 and are expected to be completed in 2020.

NAP support in India at State and National level

In India, ReAct continued engagement with local governments at the State level and contributed to support the implementation of different objectives of the NAP. Due to the elections in 2019 and changes in leadership related to the human health sector in State governments, there was a lull in governmental

ReAct supported India at State and National level in work on antimicrobial stewardship and infection prevention, on both the human and animal side.
response to some planned activities. However, there was collaboration with multiple government affiliated agencies and universities for activities. ReAct co-organized a workshop for fisheries experts with the Kerala University of Fisheries & Ocean Studies and another workshop for agriculture experts with the State Laboratory for Livestock, Marine and Agriculture Products. Overall, there was robust participation from relevant government personnel as all the projects were useful in roll-out of the state action plan on AMR in Kerala. ReAct remains a trusted advisor and partner to the local governments in India. As a testament to ReAct’s continued efforts from 2017, ReAct has been invited to attend and highlight work at the ‘Regional Workshop on AMR’ in Kochi in early 2020, organized by the World Health Organization (WHO) India Country office and government of Kerala. This meeting will include various delegations from other states across the country. The WHO India Country Office also requested ReAct’s support in planning the implementation of the state action plan of Madhya Pradesh, which is the second state in India to launch an action plan.

At the national level, the Indian government started revising the National List of Essential Medicines (the last revision was held in 2015) to promote access and AMS in India. The Director of ReAct Asia Pacific, Sujith Chandy, was invited to be an expert committee member in the AMR and anti-infectives group to review the section on anti-infectives (which includes antimicrobials) and participated in a series of meetings in 2019 (continuing into 2020). ReAct provided feedback and evidence-based data on the reasons for inclusion/exclusion of various antibiotics and the corresponding level of the healthcare facility for which antibiotic inclusion was to be considered at primary, secondary and tertiary centers. In addition, detailed discussions took place on the WHO Access, Watch, Reserve ("AWaRe") classification of antibiotics and how best to incorporate these principles into the Indian National List of Essential Medicines. The revision will have major implications in promoting access to essential antibiotics (including affordability, as some of the medicines added to the National List of Essential Medicines will be considered for pricing regulations as per the National Pharmaceutical Pricing Authority of India). This will hopefully help in curbing the misuse of reserve antibiotics and promoting the appropriate use of critical antibiotics.

In early 2019, Indian Council of Medical Research initiated a Rational Use of Medicine project by developing online education modules with the aim to promote rational use of medicines through effective prescribing. ReAct was requested to help with reviewing various modules as well as development of modules on antibiotic use in common infections. The project had a prescription evaluation component to generate data by looking at available prescription data and case records to investigate the appropriateness of the prescription. The educational modules will be first piloted for medical interns in mid-2020. The course is subsequently expected to be made available to family doctors and general practitioners.

To mobilize member countries for the implementation of NAPs, WHO South-East Asia Regional Office (WHO SEARO) constituted a task force for AMR and Sujith Chandy was invited as one of the members of the WHO SEARO task force team for AMR. This task force will advise governments in the SEARO region on their NAPs and hopefully influence strategies for implementation on the ground. In mid-2019, subsequent to the WHO AMS toolkit release, ReAct Asia Pacific’s host organization, Christian Medical College, Vellore, was requested by WHO Geneva and WHO SEARO to conduct a pilot Training-of-Trainers workshop on different AMS related themes. For this purpose, the Department of Infectious Diseases at Christian Medical College, Vellore, in collaboration with other departments and members of ReAct Asia Pacific, helped develop training material. ReAct’s presence in both these activities collaborating with WHO provided visibility for ReAct Asia Pacific with respective governments as well as channeling views and experiences through the task force recommendations and training materials.

Integrating NAP strategies at community level in Latin America

In addition to national and state level engagement, community participation constitutes a fundamental element for the sustainability of NAP interventions in the medium and long term.

In Latin America, ReAct emphasized incorporating One Health and various NAP strategies at the community level by engaging a wide range of actors including local governments, academia, health professionals, agriculture producers, social organizations, community leaders, indigenous groups, healers and practitioners of ancestral medicine, women associations, medical teachers and students. Communication activities, knowledge exchange dialogues and workshops on proper use of antibiotics (e.g. ‘What is Medicine, What is Health?’) were held in Argentina, Bolivia, Ecuador and Peru under the theme of Community Wisdom. ReAct also organized an International Workshop in collaboration with the Federa-
tion of Peasant Social Security Affiliates of Ecuador, the Superior Institute of San Isidro and the Catholic University of Cuenca, sensitizing new actors such as gourmets, technicians, together with primary healthcare workers in understanding proper use of antibiotics in relation to healthcare, food production, and broader deliberation in the health of Mother Earth. These workshops promoted better understanding of the concept of One Health and the interrelations between the ecosystems of environmental, animal and human health.

A positive outcome from the series of workshops in Latin America, has been the commitment by the local government of Cuenca of Ecuador to incorporate its health policy, specifically noting the production of food without routinely using antibiotics and consumption of healthy food, into the urban agriculture program of the Cuenca municipality. Community organizations incorporated AMR into their local work agenda and began a feedback process of alternatives for food production without routine use of antibiotics.

Policy deliberations, advocacy and messaging around NAP
ReAct presented over-arching messages that should be considered when implementing NAPs to high-level government and civil society representatives. For example, at the ReAct Africa annual conference ‘Setting the Stage for Antimicrobial Resistance: Connecting Global to Local, and Local to Global’, it was discussed how the United Nations (UN) Inter-agency Coordination Group on Antimicrobial Resistance (IACG) report recommendations could be applied to the implementation of NAPs: 1) the need for greater public purchase over the antibiotic chain - establishing antimicrobial production facilities and pooled procurement mechanisms; 2) strengthen current and extend product development partnerships; and 3) call upon the private sector to test innovative approaches, realign economic incentives, and engage in environmentally sustainable production. ReAct also called for the need for an AMR Watch to hold governments and other actors accountable. At the “Regional Workshop on Antimicrobial Resistance in Asia” organized by Third World Network and South Centre in Penang, Malaysia, ReAct engaged with Ministries of Health, Agriculture and Environment along with the Tripartite agencies, civil society and academic experts. ReAct delivered the plenary keynote on “Overview of key current Global Developments on AMR” and highlighted AMR as a crucial element of Universal Health Coverage (UHC).

In February 2019, through the Antibiotic Resistance Coalition (ARC)- a civil society coalition of 27 organisations from the global north and south, ReAct led drafting of the Coalition’s feedback on the IACG’s draft recommendations, notably on NAPs. The ARC position advocated for mainstreaming AMR into broader UHC, sustainable development, infection prevention efforts, and the food system and environment agendas. It called upon the IACG to include, in its recommendations, a prioritization framework to assist countries in directing limited resources to AMR and to assess the potential returns on such investments. ReAct called on the IACG to set clear targets for NAP implementation as well as supporting the global and national surveillance systems that would enable tracking such progress. Additionally, ReAct strongly supported the IACG’s commitment to sustainable access, not just stewardship, of antimicrobials. The ARC 2019 Annual Strategy Meeting agenda prominently featured NAPs. Drawing from the perspectives of four Low- and Middle-Income Countries (LMIC), a panel discussed considerations for working with governments, setting priorities and mobilizing resources for AMR. Furthermore, ReAct and ARC members made interventions, bringing in LMIC voices and flag-
The ReAct Toolbox provides tools, example experiences and guidance to support capacity building and implementation of National Action Plans, with a specific focus on LMICs. In 2019, ReAct significantly expanded communication and promotion of the Toolbox to LMIC actors.

ReAct Toolbox – supporting capacity building and implementation of NAPs

The ReAct Toolbox, a free online repository on ABR, provides tools, example experiences and guidance to support capacity building and implementation of NAPs, with a specific focus on LMICs. In 2019, ReAct significantly expanded communication and promotion of the Toolbox to LMIC actors, through global and regional communication channels (social media, newsletters), at meetings, and by directly contacting and interacting with stakeholders. ReAct began to more actively consider gender in the screening process for material to be included in the Toolbox, and relevant resources were added. By the end of the year, work began to strengthen sections on the environmental perspective of ABR, e.g. in Elements of a NAP – Environmental considerations. Two inspirational examples were published in the Toolbox: Improving antibiotic use for urinary tract infections in Nepal and Superheroes against Superbugs - Engaging with children on antibiotic resistance.

In 2019, more than 150,000 users from over 150 countries accessed the Toolbox, and it had more than 20,000 returning users. These statistics demonstrate a two-fold increase since 2018, indicating an increasing interest and need for the accessible and credible information that ReAct is providing. Among the top 20 countries in terms of visitors, six were in Africa (Nigeria, Kenya, South Africa, Egypt, Ethiopia and Ghana) and six in Asia (India, Philippines, Pakistan, Malaysia, Bangladesh and Thailand). The Toolbox was lifted as a supporting tool in Uganda’s NAP 2018-2023 (public release in 2019), and was recommended by persons involved in NAP work, such as by Professor Céline Pulcini, French MOH Coordinator of the AMR NAP. It was also listed as a useful resource in WHO’s “Resource materials for in-country development and implementation of AMR NAPs”.

Furthermore, an external, peer-reviewed evaluation of the Toolbox was published in the JAC-AMR in December 2019, which stated: “This resource is an encyclopaedia of all topics pertaining to antimicrobial stewardship and antimicrobial resistance, offering the user myriad supplemental readings and is a valuable addition to the field. The logical design of the toolbox allows users to navigate easily through the sections, which take the reader on a pathway from introductory information to policy design and everything in between. Accessibility and usage of the resource is adaptable depending on the user’s needs, with the site featuring a useful search function.”

In addition to routinely updating materials and resources, ReAct initiated a funder and collaborator stakeholder mapping and started efforts to apply for additional funding that may complement the core support from Swedish International Development Cooperation Agency (Sida). Collaborations and interactions were initiated in 2019. For instance, ReAct entered an informal collaboration with the Global Health Network, an online ‘science park’ for health professionals in LMICs. The Toolbox is currently featured on their antimicrobial resistance portal (soft launch April 2019). ReAct is currently in discussions internally and with potential Toolbox partners to determine the best way forward in maximizing exposure and use of the Toolbox. This includes intentions to move towards a more cross-nodal collaborative effort within ReAct on the Toolbox.
Coalitions, communities of practice and movements are strengthened and extended to address antibiotic resistance through narratives and action that contribute to universal health coverage, poverty reduction, food justice and environmental sustainability.

Strategic objective 2

Movement building
Project 2. ABR and UHC

ReAct has long advocated that addressing AMR is key to achieving the Sustainable Development Goals (SDG). Highlighting the link between the need for effective antibiotics and UHC as part of SDG3, was a priority for 2019. This approach proved successful and will be an important platform for work in the years to come (closely aligning with Strategic Objective 2).

ReAct’s work on ABR through UHC mobilized greater engagement and awareness with governments than specific civil society partners. At an early stage, ReAct modified their target strategy in realization that it would be more successful working towards countries, than targeting the tuberculosis (TB) community for a joint UHC agenda (as initially proposed in the work plan). In view of the complex political dimensions of UHC in general, and how different health programmes positioned themselves in relation to the UNGA high-level meeting on UHC, ReAct judged that it would be more effective in pursuing UHC work separately from the TB community. For this reason, ReAct focused on raising ABR in relation to the quality and effectiveness of health services towards engagement with countries.

ReAct actively followed the process of the political declaration on UHC adopted by countries at the UNGA high-level meeting on UHC. ReAct convened ARC and civil society partners to discuss a WHO-commissioned paper on the intersections between AMR and UHC. During the Coalition’s WHO-NGO dialogue on AMR, ReAct worked with the People’s Health Movement to craft an intervention that advocated how WHO should take up UHC and AMR as entwined issues at the UNGA. This resulted in critical feedback on this analysis on a WHO-organized listserv of NAP partners. ReAct was pleased to see that AMR was included in the declaration, specifically, that the UHC declaration was used as a mechanism to make reference to and follow up on the IACG recommendations. However, only six countries mentioned ABR/AMR in their UHC statements. This motivated ReAct to continue work on ensuring closer links between UHC and ABR, i.e. in relation to financing of UHC and the SDGs. As a result, after the UNGA, ReAct focused efforts to understand what follow-up processes this opened and engaged with some UN missions in NYC to influence the process leading up to a proposed UN high-level dialogue on AMR to be held in 2020.

ReAct’s work on UHC was further emphasised through the production of a policy brief that outlines how ABR is a core element of UHC, how healthcare relies on effective antibiotics, and provides entry-points for integrating work to manage ABR into UHC. In producing this brief, ReAct aligned with WHO’s work on the topic by utilizing the WHO Health Systems Framework as a basis and integrated feedback from LMIC representatives during the ReAct Africa Conference. The messaging on UHC and ABR was complimented and reinforced by the WHO and the ReAct Africa network.

In conjunction with the preparation for the policy brief, ReAct conducted a case study of best practices from Thailand. Some important findings noted that UHC helps lower the burden of disease and contributes indirectly to a reduction of AMR. However, the implications of an increase in access to medicines through UHC and linkages to AMR reduction were not fully clear and need to be explored further. When interviewed, Thailand’s MOH officials mentioned that they were not particularly interested in combining their AMR interventions with UHC as these were two separate issues, each important on its own. One of the challenges was the lack of available data to show that lowering AMR could result in UHC.
cost savings because the bulk of expenditures under UHC was for non-communicable diseases. The case study, however, provided a detailed analysis of how the Thai UHC system evolved over the decades and the many lessons it contained for other LMICs wishing to set up UHC systems. It also highlighted Thailand’s innovative AMR interventions, which are relevant in other LMIC contexts. Following the UNGA Declaration on UHC, this Thailand UHC case study was published in the Indian newspaper Hindu Business line and was shared with ReAct Asia Pacific partners and the MOH in the region.

ReAct’s UHC policy brief was distributed ahead of the UNGA high-level meeting on UHC to country officials at UN missions in New York and Geneva, with a targeted focus on countries in the Group of Friends of UHC in New York. Countries responded with positive feedback and found it very useful. Both ReAct’s policy brief and Thai case study featured in the WHO NAP community of practice listserv. Additionally, ReAct planned and produced a global online campaign that included social media cards, videos, articles and React Newsletter send out - distributing messaging through various channels and platforms at different strategic times throughout the year, including during the World Health Assembly (WHA), the UNGA week, World Antibiotic Awareness Week (WAAW), UHC Day, World Patient Safety Day etc. During the UNGA week the online campaign resulted in: 135 new followers/subscribers, 57,000 impressions and 2,165 in engagement (clicks, likes, comments, shares and retweets). This engagement led to other opportunities, for example, ReAct was approached by the Asia-Europe Foundation and Government of Japan who actively supports UHC and AMR activities.

ReAct Africa Annual Conference

The 2019 ReAct Africa Annual Conference had the theme Achieving Universal Health Coverage while addressing Antimicrobial Resistance. The conference had over 120 multi-sector participants from 31 African countries, United Kingdom (UK), United States (US) and Sweden. Participants were drawn from Ministries; human, animal and environmental health sectors; experts on UHC and AMR; civil society representatives; and representatives from intergovernmental agencies including the Tripartite. Through presentations, discussions and the sharing of case studies, the conference covered a range of topics and underscored that strong, resilient primary health systems are a fundamental element of addressing AMR and a key component in the progress to attainment of UHC. The conference discussed the above-mentioned policy

The learning and exchange of experiences on the antimicrobial resistance situation and policy responses at country level will go a long way in informing the global agenda of UHC and AMR.

Mirfin Mpundu, Director ReAct Africa

Financing is critical for UHC and AMR

Effective governance with adequate financing is central to implement NAPs and improve coverage and quality of healthcare delivery. Experiences of working across Ministries of Health and Finance to implement UHC were shared at the ReAct Africa conference.

Case study shared at ReAct Africa Annual Conference from Dr. Andrew Mulwa, Minister of Health, Makueni County of Kenya

Makueni is a rural county, with a population of about one million people and has been a pioneer county to pilot UHC in Kenya. The county’s health approach is informed by the WHO’s health system building blocks and has made significant investments in the healthcare system by allocating >30% of its annual budget to healthcare. All revenue generated in the county hospitals is reinvested to improve service delivery. Other streams of revenue to strengthen hospital operations include recurrent hospital financing, free maternity, UHC and reimbursements. With a predictable and reliable financing mechanism, hospitals have been able to undertake development projects, recruit staff on contract basis and fund operations supplementing the National Government’s funding resulting in high quality service delivery. The county is keen on quality improvement models and the utilisation of Standard Operating Procedures. Makueni became famous for its Universal Healthcare Scheme. It is the first county to have a Directorate of health commodities and supply chain, where they reported a 99.9% supply of essential commodities throughout 2018.
brief and participants from both UHC and ABR workstreams at country level found the policy brief useful. A conference report and a joint statement with the South Centre were shared with CSO partners and national governments. Deliberations highlighted that investing in quality-assured medicines underlines the effectiveness of treatment, leading to better health and economic outcomes and contributes to efforts in attaining UHC; while poor-quality medicines lead to exposure to sub-therapeutic environments that breed resistance. Participants expressed renewed momentum with deeper understanding on how AMR affects global efforts in UHC as well as SDGs.

**Project 3. Catalyzing and sustaining partnerships**

*In 2019, ReAct expanded* civil society mobilization work to engage and support broader constituencies including grass-root groups, farmers, consumer groups, student clubs and cross-sectoral CSOs to become advocates, actors and champions of AMR in their respective field (medium-term and long-term outcomes under Strategic Objective 2).

*ReAct continued* to document best practices and conduct analyses to provide information and learnings across different groups and sociocultural contexts. In 2019, as part of the Thai Value Chain Analysis, ReAct documented Thailand’s efforts to systematically collect data on antimicrobial consumption in both human and animal health sectors. Together with other data on the pattern of resistance across Thailand, the antimicrobial consumption data will be valuable in the future design of effective policy interventions. The 2019 Indonesia report provided an overview of available data on antibiotic use in the food animal farming sector and regulatory systems in Indonesia with implications for further interventions and policies. It pointed to gaps in available data that may need further research or policy mechanisms to gather accurate information. Case studies of the Food and Agriculture Organization of the United Nations (FAO)-led efforts to promote biosecurity practices among poultry farmers in Indonesia were included, which could be useful for farmers in other LMICs to study. In December 2019, ReAct was encouraged to see that the Thai Directorate General of Livestock and Animal Health at the Ministry of Agriculture banned the use of Colistin in animals (livestock and non-livestock). It is of course difficult to link this involvement with policy changes, but the increasing interaction of ReAct’s partner, Yayasan Orang Tua Peduli (Concerned and Caring Parents), with the Ministry of Agriculture officials demonstrates a catalytic effect leading to stronger interests and trust. The plan is to have final products illustrated with graphics and distributed to Ministries of Health and Agriculture, CSOs, media and others in Thailand, Indonesia and other parts of the South East Asia region in the first quarter of 2020. Both reports will be useful for policy makers, health professionals, media and civil society to formulate appropriate responses.

*In 2019, ReAct also saw unexpected results from con-

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**Based on the Bangkok Declaration released in March 2019, ReAct successfully pushed for acknowledgement in the IACG’s recommendations that all Member States “phase out the use of antimicrobials for growth promotion” in food animal production.**
continued partnerships and collaborations. In Malaysia, a memorandum with a situation analysis of antibiotic use in food animal farming with recommendations was presented to Dr. Dzulkefly Ahmad, the Malaysian MoH. Directly after, Dr. Ahmad pledged financial support of $12,000 USD for an ‘Antibiotic Smart Campus’ project with ReAct Asia Pacific partner USAINS in Malaysia to be implemented in 2020. ReAct supported the development of the memorandum as well as a follow-up seminar on AMR, conducted in December at the Universiti Sains Malaysia. ReAct’s sustained support to partners, such as USAINS has led to increased capacity and resource mobilization including attracting funds from domestic sources (in this case from the Malaysian MOH).

In an effort to solidify and expand partnerships, ReAct attended and paneled various sessions at the World Health Summit. Sessions paneled include innovation and other approaches around counterfeit and substandard medications; the launch of Wellcome Trust’s report on communications and framing around AMR; and a side event called “Collaborating Across Sectors for more effective action: Tackling AMR through stronger public-private partnerships”. ReAct attended the following sessions: the launch of UNITE, a global parliamentary group to fight infectious diseases (including AMR); the way forward with UHC; the launch of Global Antibiotic Research and Development Partnership’s (GARDP) Strategy to Bring 5 New Antibiotics to Market by 2025; and Global Action Plan for Healthy Lives and Well-Being for All. In addition, ReAct met with a supply chain CSO working in Kenya and Nigeria (Field Intelligence), WHO colleagues, and colleagues from the United Nations Children’s Fund (UNICEF), GARDP, the Global AMR R&D Hub, Wellcome Trust, Union for International Cancer Control and the Access to Medicines Foundation.

Antibiotic Smart Farms
ReAct has targeted farmers’ groups by organizing antibiotic smart farm activities in LMIC contexts, with the aim of sensitising farmers about ABR and devising methods to help them transition away from unnecessary antibiotic use.

In India, ReAct organized workshops to identify biosecurity measures implementable in low-resource settings for poultry and shrimp farms. ReAct organized various engagement activities, which helped expand the knowledge base about antibiotic use in agriculture in low resource settings. There has been an increased understanding among the local agriculture experts and veterinarians about adapting evidence-based strategies to suit grassroot requirements. The project enhanced local capacity to address issues of inappropriate use of antibiotics in agriculture while ensuring that ABR becomes an area of concern for the professional stakeholder groups working in this space.

In September, ReAct brought together over 100 experts, veterinarians and administrators on the same platform to have a ‘Kerala Veterinarians’ summit on AMR’ supported by the Indian Veterinary Association and the WHO country office. The discussions pointed to the need for biosecurity measures in farms to reduce infection and antibiotic usage, the need for government support in the form of subsidies for improving farming operations and providing insurance coverage for the possible losses during the process. The summit was accompanied by a ‘Kochi declaration on one health action on ABR’ which was endorsed by the presidents of the medical, dental and veterinary associations, in the presence of the Minister for Animal Husbandry & Fisheries. It was the first major event in India to bring together the three associations representing the professional prescribers of antibiotics. The event was highlighted as a milestone in the operationalization of the animal health component of the Kerala Antimicrobial Resistance Strategic Action Plan. It successfully created momentum and started a broader conversation on the routine use of antimicrobials in agriculture. ReAct was subsequently invited to other states to assist in engaging agriculture and veterinary professionals on aspects of AMR.

Through the lens of ‘antibiotic smart’ farms and communities, ReAct initiated new, and continued existing collaborations, with civil society and government partners across Asia, Africa and Latin America.
In Africa, ReAct engaged the Kenyan Ministry of Agriculture, Livestock and Fisheries, Kenya Agriculture Livestock and Research Organization, World Organisation for Animal Health (OIE) and other organizations in a pilot to promote better farming practices to reduce the use of antibiotics in dairy farming. Meetings were held at the Directorate of Veterinary Services and other partners such as the International Livestock Research Institute (ILRI). ReAct learned about ongoing processes through preliminary scoping and to avoid competing resources and duplication of work, ReAct adjusted focus areas to dairy farms. The proposed pilot was well received by participants in the meeting and the Kenya Dairy Board recommended addition of an objective to build capacity of animal health service providers to support prudent use of antimicrobials in the treatment of mastitis. A field visit to the Githunguri Dairy Farmers Association was done in June as part of a situational analysis. Planned follow up activities included the training of farmers; however, not much progress was made in 2019, it is hoped that this could be implemented in 2020. The Ministry of Agriculture, Livestock and Fisheries AMR Focal person responsible for this project has had competing priorities. They have been spread thin.

One Health mobilization in Latin America

In Latin America, ReAct continued the promotion of community engagement for addressing ABR in human health and food production. ReAct hosted the second international summit ‘Mother Earth, One Health’, bringing together more than 300 people from Argentina, Bolivia, Peru, Ecuador, Paraguay, Uruguay, and other countries. The Rosario Call was made, as an outcome from the summit and was signed by the Socio-environmental Health Institute of the National University of Rosario, the International Society for the Improvement of the Use of Medicines, the International Group Reimagining Resistance, and Ecological Action. Consequently, ReAct was approached by researchers from Digi Science with interest in promoting research on the use of antibiotics in agricultural practices and the impact on ecosystems and human health. One of the first investigations in this regard will be on the impact of ionophores used in the agricultural industry and their dissemination in water sources, promoted by researchers from the National University of La Plata, Argentina.

The Second International Meeting

The Second International Meeting on ‘Health in the Hands of the Community’ was held in November, with the participation of community representatives, researchers, agroecologists, health professionals, representatives of the MOHs of Ecuador and Bolivia, etc. This event shared understanding of the relationships between the human microbiome, food production and consumption, health and disease, and discussed actions to which many participating organizations committed themselves to include in their working agendas. As a result from the discussions, there was an agreement to implement a broader education and communication plan aiming at public awareness-raising at community level in curbing antibiotic use in food production for improving ecosystems and human health. The Cuenca Call was developed by the attendees to be a platform for action for the community, governments, academia and social organizations, where 200 organizations from all over Latin America signed. Another promising outcome was the participation of the Coordinator
of Peasant Communities of Peru, who incorporated ABR into the educational and communicational processes for the care of the Earth and reaffirmed their commitment to stimulate action in Northern Peru. Additionally, the Agroecological Collective of Ecuador committed to incorporate the use of antibiotics as part of their research and have expressed their interest in promoting the theme among consumers. The academy, through the Network of Free Chairs, also reprioritized to incorporate the use of antibiotics as part of its agenda. Access to and consumption of food free of antibiotics has become part of the campaign on “Food Security and Sovereignty”.

**ARC coordination**

**Serving as ARC’s Secretariat**, ReAct led the authorship of multiple strategic interventions on AMR policy, joint civil society statements, and dialogues with intergovernmental agencies. Through ARC, ReAct edits a monthly newsletter and hosts policy discussions among ARC members, via teleconference and at an annual strategy meeting. Several campaign areas, plus greater attention to the environment and AMR, came out of the ARC strategy meeting. One of these campaigns seeks to curb the use in food animal production of last-resort antibiotics important to human medicine; illustrating the importance of ReAct’s intersectoral work through ARC. ReAct worked to position the strategic addition of new potential ARC members in the coming year.

**Based on the Bangkok Declaration** released in March 2019, ReAct successfully pushed for acknowledgement in the IACG’s recommendations that all Member States “phase out the use of antimicrobials for growth promotion … starting with an immediate end to the use of antibiotics categorized as the Highest Priority Critically Important Antimicrobial Agents.” While this fell far short of ReAct and partners sought, key entry points for mobilizing efforts were identified to move forward: 1) targeting greater transparency of the trade of last-resort antibiotics for food animals; 2) working to globalize civil society campaigns focused on changing food procurement practices; and 3) exploring the potential of co-benefits of reducing antimicrobial use in food animal production.

**For the last-resort antibiotics campaign**, discussions with ARC partners uncovered challenges to making progress on this front: 1) trade data tracking last-resort antibiotics such as colistin are not readily available, and OIE has refused identifying countries that continue to use the drug for growth promotion under their voluntary reporting system; 2) as colistin is not used in U.S. food production, enlisting US-based ARC members on a global campaign targeting this antibiotic requires a broader framing of the campaign; and 3) targeting multinational food producers in India and Brazil plays out differently in the local context. In India, wet markets are more often the source of food, but multinational fast food chains still make good media targets. In Brazil, consumer groups like IDEC do not want to engage with negotiating commitments from such multinational fast food chains for procuring meat products raised without the routine use of antibiotics because they do not wish to implicitly endorse these restaurants as an alternative to locally produced food sources. Strategies to address these concerns are the focus of the campaign work in 2020.

**ReAct continued** to make AMR a focus of civil society and the media in other venues. Speaking at the U.S. Council on Foreign Relations in April 2019, ReAct contributed to a panel on “Trade, Agriculture and Antimicrobial Resistance,” at a Global Health Symposium on “Is Globalization Still Good for Health?,” Anthony So, Director of ReAct North America described how the $1.1 trillion in agricultural trade that connected the globe, and ensured greater food security, could also be “a superhighway for distributing the next superbug,” Globalizing the response to these drug-resistant pathogens, that so readily crosses borders, will require large investments.

**Student engagement**

ReAct has actively engaged future champions of AMR through close collaboration with host institutions and partners in ABR education as well as supporting student initiatives. The Toolbox has also been useful in catalysing and sustaining partnerships, as a concrete resource to engage academia and student networks, and has attracted invitations and discussions on potential collaborations.

**ReAct’s renowned expertise** and academic competence led to several educational and training activities in 2019. ReAct continued to teach an online DrPH course on “Tackling the Intersectoral Challenge of Antimicrobial Resistance” at the Johns Hopkins Bloomberg School of Public Health. ReAct featured AMR issues in the Leaders Enabling Access to Pharmaceutical (LEAP) workshop organized with ARC members, Public Citizen, the American Medical Student Association and US PIRG.

**In Sweden**, ReAct was invited to give lectures and seminars, reaching around 300 students at Swedish universities. For instance, ReAct was invited to present at the Nobel museum in Stockholm to 100 school students on a global campaign targeting this antibiotic requires a broader framing of the campaign; and 3) targeting multinational food producers in India and Brazil plays out differently in the local context. In India, wet markets are more often the source of food, but multinational fast food chains still make good media targets. In Brazil, consumer groups like IDEC do not want to engage with negotiating commitments from such multinational fast food chains for procuring meat products raised without the routine use of antibiotics because they do not wish to implicitly endorse these restaurants as an alternative to locally produced food sources. Strategies to address these concerns are the focus of the campaign work in 2020.
teachers. A short video interview (in Swedish) about ABR had been recorded and included in training materials for the teachers.

**In Latin America**, ReAct had extensive outreach and exchange with institutions to include ABR in curriculum design for both teaching and student activities (details under project 8).

**In India**, the ASPIC (Antibiotic Stewardship and Prevention of Infection in Communities) initiative that was piloted and launched by ReAct in 2018, has grown successfully to 15 reputed institutions with more upcoming. Students organized various community engagement activities, from science-related events to increasing awareness or competencies regarding AMR. ReAct used this as a learning experience to understand how to effectively mainstream the conversation about AMR among the student community and the possible levers for successful AMR actions by students. This helped cultivate a better understanding of the methodology and tools required to catalyse community-based activities by students. Additionally, ReAct organized short courses on research laboratory techniques in association with Pushpagiri Research Centre for students of ASPIC clubs of various institutions. This has been effective in creating interest in AMR research among students and increasing their knowledge base. The initiative was successful in building the ASPIC brand, apart from increasing the skillsets of the participating students. In February 2019, ReAct organized the first ASPIC Club annual meeting. It provided a platform to share experiences and create a sense of camaraderie among the club members from different colleges and universities across the state of Kerala, India. The annual meeting discussed the need to publicize issues related to AMR and public health, the importance of communicating science for public consumption, the requirement to understand the concept of AMR and the ever-evolving nature of drug-resistant infections. It was also used as a feedback opportunity since an increased understanding about AMR among ASPIC students was noticed, but they needed a helping hand in translating the understanding into community-based actions. To commemorate the 2019 WAAW, ReAct and the ASPIC club network organized the third edition of an annual photography competition, which attracted entries from South and South-East Asia and has become a regular feature in the event calendar of the universities in the region. ‘ASPIC’ is becoming a recognizable name among colleges in the Kerala State. This has helped ensure that more institutions join the network, thereby helping to provide long term sustainability for the platform. More than fifty percent of the office-bearers of individual clubs are women and there are two clubs in women-only colleges to ensure gender balance. The importance of antibiotics in ensuring safe motherhood and child survival has been highlighted to the students so that they understand the need for timely action.

**In Africa**, ReAct engaged university students and strategically targeted institutions in Kenya in 2019 including the University of Nairobi, Kenya Medical Training College and United States International University-Africa (USIU-A, which has a pharmacy student club of more than 300 members). ReAct held an AMR students’ sensitization workshop in Nairobi in June for 97 students, setting the groundwork for them to be AMR champions in their own individual and professional capacity. ReAct invited Kenyan MoH AMR focal person, Dr. Evelyn Wesangula, and her colleague, Dr. Jared Nyakiba, to interact with the students. IEC materials on AMR such as the ReAct brochure “Take Action on AMR: For students in college and university” and comic strips were distributed with a variety of topics such as infection, prevention and control (IPC), challenges around the lack of microbiology labs, hospital acquired infections, post marketing surveillance, media engagement, quality improvement, cross resistance issues, AMS, patient counselling and patient safety. ReAct was pleased to find that 18 out of 38 students put a research focus on AMR in their last year at the university and were supported in visiting the MOH to collect more data on AMR for
their projects. The platform enabled wider resource sharing and networking opportunities for African students at international level, including the invitation to participate in the ReAct Africa Annual Conference, the WAAW activities and the Innovate4AMR competition. **Innovate 4AMR** is a global design competition to address AMR in resource-limited healthcare settings. In 2019, the competition [in its second year] invited students to innovate over how to approach AMS. ReAct also added gender equity as a dimension in this year’s competition. ReAct partnered with the International Federation of Medical Student Associations to mobilize student teams, the South Centre and especially the WHO in organizing the capacity-building workshop in Geneva during WAAW. ReAct successfully recruited $45,000 USD from the WHO to support the ten winning teams’ attendance at the workshop.

**Piloting new outreach** approaches with Facebook promotions, ReAct reached over a half million people, particularly targeting universities in LMICs. Booster emails helped create and maintain a listserv of over 1,200 interested students. WHO leaders on AMR, Dr. Hanan Balkhy (Assistant Director-General, AMR) and Dr. Marc Sprenger (former Director of the AMR Secretariat), recorded videos to encourage applications to the Innovate4AMR competition. To narrow the 163 team entrants, ReAct organized a technical review panel involving ReAct and WHO experts. Then a diverse and distinguished International Expert Panel helped narrow the contenders to ten winning teams. Over three-quarters of the finalists attending the 2019 capacity-building workshop were students from LMICs.

**Project 4. Global CSO-seeded AMR movement summit**

In 2019, a summit conceptualization was done between ReAct’s nodes and their respective extended networks. This initial work, however, showed that more work needs to be done to engage a wider group of actors in civil society more deeply on ABR in order to be able to develop a summit, which has added value compared to current regional meetings. Currently, the summit idea has been replaced by an engagement strategy, which includes engaging actors who headquarter and met the Director of Médecins Sans Frontières’ (MSF) Access Campaign at a South Centre dinner reception. During the workshop, ReAct shared successes from Innovate4AMR 2018 Fellows. For instance, the team from Uganda won a $10,000 USD award from the Foundation for Innovative New Diagnostics to implement their proposal. This year’s teams have generated significant media interest, including one TV interview. The UN Innovation Network highlighted Innovate4AMR in the Best of 2019 Issue Newsletter and WHO added several Innovate4AMR teams to a consultation roster for revising national AMR awareness campaigns.

**In December, Anna Zorzet was invited to be a mentor for the Joint Programming Initiative on Antimicrobial Resistance (JPIAMR) Hackathon - “Hacking AMR 2019 – Using the digital world to fight antimicrobial resistance”.** The hackathon brought together scientists, designers, patients, developers, innovators, students and entrepreneurs to collaborate, and create solutions to real-world problems to improve human, animal and environmental health and well-being with regards to AMR. During the hackathon, 40 participants formed seven different teams and worked on diverse digital solutions to AMR. The winners of the grand prize were team ‘Mission Prescription’ for an idea for an electronic tool to support doctors in their prescribing behaviours.

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Global governance

Strategic objective 3

Globally coordinated governance on antimicrobial resistance ensures a sustainable response that takes into account the needs, challenges and priorities of LMICs.
Project 5. CSO mobilization for accountability of global governance

2019 was an important year for determining the global governance path on AMR and to speed up action by all actors (Strategic Objective 3). The IACG process has played an instrumental role in driving the global governance process. ReAct was actively engaging in debates to encourage LMICs to provide input to the open consultations on the IACG recommendations, and by advocating for finance and governance mechanisms that would meet LMICs’ needs, challenges and priorities. ReAct started 2019 by attending the WHO Executive Board meeting and delivering a statement calling on a group of countries to come together and act decisively on AMR and voice LMICs’ views and the need for developing proposals on sustainable and tangible catalytic funding for capacity building to implement NAPs. ReAct also sent a set of key policy messages on ABR for actions to take in 2019 to all WHO Member State Permanent Representatives ahead of the meeting.

Engagement and following-up of the IACG Process

The first quarter of 2019 focused on ensuring that the recommendations of the IACG included key elements of a strategic response to AMR that would be a solid foundation. During the IACG process, two ReAct leaders were part of the deliberations—Anthony So, who served as IACG Co-Convener, and Otto Cars, who served as an IACG member. They, with support of ReAct colleagues, were instrumental in providing feedback at every stage of deliberations; through consultations with civil society held by the Tripartite, attending meetings at WHO and FAO, and coordinating subgroup discussions on report drafts. In fact, a block of IACG members were recruited and turned in over 20 pages of comments on the 17-page draft report, with 57% of the proposed revisions accepted (43% in their entirety). These efforts, both within the IACG process and outside through ARC’s inputs to the public consultation process, culminated in Anthony So delivering the IACG recommendations to the UN Secretary-General at a small ceremony in April 2019.

Following a series of ARC teleconference calls to discuss the draft IACG recommendations, ReAct led the authoring of a joint civil society response covering five key areas: 1) NAPs; 2) Curbing antimicrobial use in animal production; 3) Innovation and access; 4) Civil society and private sector involvement; and 5) Sustainable financing and accountability. Over 15 civil society groups signed onto the statement that urged the IACG to communicate to policymakers its final recommendations that:
- The need to respond to AMR challenges is urgent
- Resources—both financial and technical—must be commensurate with the call for action on AMR. A stronger case for investment, including for capacity building, should be made.
- Targets must be set, both globally and at the country level, so that milestones might be measured and met in addressing this challenge in a timely manner.
- Accountability for meeting these milestones must be put into place.

As former IACG members, Otto Cars and Anthony So wrote an open letter to all country missions in NYC, Geneva and Rome. ReAct received feedback from LMICs such as Zimbabwe and it contributed to raising awareness around the aspects of global governance and finance of the IACG recommendations. ReAct also actively contributed analyses and input to the statements and feedback that Norway and Sweden delivered within the IACG process.

As a result of these actions and continued advocacy, ReAct was contacted in early October to organize and moderate a teleconsultation with the Tripartite Secretariat on the Terms of Reference (ToR) for the Global Leaders Group. ReAct set an agenda to ensure key strategic messages were included arguing for a global governance process that would be more accountable to Member States, more transparent to the public, and free from conflict of interests. ReAct
also supported CSOs, particularly from LMICs, in making interventions. By contrast, during the Tripartite Secretariat’s consultation on the ToR for the Global Leaders Group on AMR, only five LMIC countries submitted feedback. There was no participation from Asia nor Africa. However, the feedback from ARC including messaging on global governance represented the perspectives of civil society from both the Global North and Global South. The two-hour long teleconsultation involved 27 civil society representatives from 21 organizations. These messages were reinforced in the follow-up written input to the public consultation process. Following this teleconsultation, Anthony So was invited to make an oral intervention during the in-person civil society consultation, hosted by the UN Foundation, in Washington, D.C. ReAct will continue to closely follow and influence the process of global governance in 2020.

ReAct also contributed to the development of the Tripartite Monitoring and Evaluation (M&E) framework for the Global Action Plan on Antimicrobial Resistance released in May 2019. In this publication, it is mentioned that AMR remains as a gap in the Sustainable Development Agenda.

AMR-specific SDG indicator

ReAct’s campaign to introduce an AMR-specific indicator to track progress on the SDGs reached a key milestone in 2019. The SDG Knowledge Hub article, ReAct developed encouraged integration of AMR into the SDG monitoring efforts and flagged the following concerns: 1) the need to adapt other SDG indicators to complement the measurement of stewardship with that of access to antibiotics; and 2) the need to include measures that benchmark the use of antimicrobials in food animal production. These developments can be viewed as stepping stones to the emergence of an AMR Watch effort that could hold key stakeholders in AMR accountable.

ReAct targeted members of the UN Interagency Expert Group on Sustainable Development Goals (IAEG-SDG) with these messages and had a constructive dialogue with the Swedish representative. ReAct rallied ARC members and allies to lend support to this indicator. During the UN Statistical Commission’s public consultation process on potential new SDG indicators, 51 ARC members and allies were organized to submit comments. This comprised one out of every five (22%) civil society responses on the AMR-specific indicator for tracking the SDGs. In the end, the AMR-specific indicator garnered over more comments in support of its adoption than any other indicator. Piloting a new Facebook promotion and Twitter campaign targeted around the UN General Assembly (UNGA) where UHC was taken up, ReAct successfully used social media to distribute an infographic that visualized how AMR is inextricably tied to multiple SDGs, resulting in over 20,000 impressions on Twitter. Overall, Facebook campaigns reached over 20,000 unique individuals within 8 miles of the UN Headquarters over one week. To influence the community of practitioners and policymakers most engaged in the SDGs, ReAct wrote an op-ed published in the SDG Knowledge Hub, explaining how tracking progress on AMR is key to meeting the SDGs. The op-ed argued that the methodology used to measure some of the existing SDG indicators should capture the complementary picture of access to antibiotics, not just stewardship of these drugs. The article’s release timed with the IAEG-SDG’s deliberation over the adoption of new SDG indicators in October 2019, and the AMR-specific indicator received IAEG-SDG endorsement as one of the few new indicators for tracking the SDGs.

UN level outreach and mobilization

A major focus for the UNGA high-level week in September was UHC, but side discussions included the SDGs and financing for development. Hence, ReAct planned different communication campaigns focusing on UHC, SDGs and finance with different target audiences—focusing on country delegations that were in NYC during the week. For these campaigns, all the material in relation to these topics from the ReAct network nodes were compiled and used in different channels and platforms to spread the messages and products. Early plans to host a side-event during the UNGA high-level week were canceled, since the primary focus was on UHC and co-hosting with the Swedish Government or UNICEF could not be secured due to the potential lack of high-level attendance. Instead, a small ReAct delegation was sent to New York during WAAW, where UNICEF invited ReAct to speak on AMR and children at a UNICEF AMR technical note launch event. ReAct had previously provided feedback on this note and contributed extensively in sharing and in communications around the launch event, which included writing a blog post interview with representatives from UNICEF. While in New York, to mobilize greater involvement of UN agencies not fully mandated to address ABR, and together with the Dag Hammarskjold Foundation (DHF), ReAct hosted a roundtable discussion with UNICEF, United Nations Development Programme (UNDP) and United Nations Population Fund (UNFPA) on how they could contribute to the work on implementing the IACG recommendations, NAP support and in global governance. ReAct also presented at
an event at UNDP to raise internal awareness of their potential contribution to AMR as a development issue, which led to the mobilization of larger support for AMR activities within UNDP. While in New York, ReAct held bilateral meetings with the UK and Swedish mission to the UN, to discuss global governance advocating for broader engagement of actors beyond the Tripartite. This was greatly appreciated by all parties, and all attributed ReAct to having a significant role in building momentum in the respective organizations. The roundtable and bilateral meetings sparked closer contacts around AMR issues between UNDP and UNICEF, and ReAct has maintained regular contact with all organizations by routinely providing AMR updates on developments and events. The bilaterals with the UK mission has led to a close relationship where ReAct has been consulted on a number of AMR issues.

ReAct actively engaged in debates to encourage LMICs to provide input to the open consultations on the IACG recommendations, and by advocating for finance and governance mechanisms that would meet LMICs’ needs, challenges and priorities.

ARC Strategy Meeting - Charting a Civil Society Agenda on AMR

ARC annual strategy meeting with the ARC and civil society allies, “Charting a Civil Society Agenda on Antimicrobial Resistance: Connecting Global to Local” conference, created an opportunity to plan next steps for civil society’s collective response. The meeting had three goals: 1) provide a shared understanding of the intersectoral policy challenges for addressing AMR; 2) shape key messages for lifting up priorities in follow-up to the IACG recommendations and recent global policy developments on AMR; and 3) develop joint campaign targets that would focus ARC and civil society efforts over the coming year. Co-funding under a Fleming Fund grant to the South Centre and the Third World Network enabled ReAct to invite more than 30 participants representing CSOs across five continents to discuss key issues on AMR and policy steps moving forward as a coordinated civil society effort.

Three priority areas emerged from ARC’s civil society strategy discussions: 1) curbing the use in food animal production of last-resort antibiotics important to human medicine; 2) end-to-end approach to ensure sustainable access to antibiotics; and 3) innovative financing approaches to realign incentives and advance efforts to address AMR.

Project 6. Regional Governance structures

Engagement in the European region continues to be important for ReAct, as several European countries are active in the AMR field and AMR is a priority for the EU’s work on health and agriculture. For ReAct, it is important to include LMIC and development perspectives into the EU’s work. In 2019, ReAct actively expanded Brussels-based civil society network as informants and collaborators and sought advocacy opportunities towards EU institutions (European Parliament and European Commission) and EU Member States, including Permanent Representations in Brussels. Different channels and platforms to deliver key messages were used, including the following: submitting feedback on the Commission’s public consultations on Horizon Europe, Innovative Health Partnerships, etc.; posing questions related to the Commission’s priorities in implementing the EU One Health Action Plan; and pushing for the LMICs and
development perspectives of AMR in relation to EU’s work.

In 2019, ReAct addressed Strategic Objective 3 by raising the sustainable development perspectives of AMR along various means of EU engagements, which included the EU Ministerial meeting on AMR under the Romanian presidency. Otto Cars was invited to give an intervention at a dinner event with the Ministers, where two of ReAct’s publications regarding AMR and the SDGs and AMR and Financing, were distributed via email to EU Health and Agriculture Ministers. Positive feedback was received from Dame Sally Davies (former Chief Medical Officer UK), Anders Nordström, Stefan Peterson (UNICEF) with formal acknowledgements from the Ministers of Health and Agriculture of Ireland and the Danish Minister of Health. Twitter was used in tagging 30 EU Health and Agriculture Ministers, the EU Commission and the European Centre for Disease Prevention and Control (ECDC) Director to reach a wider audience on social media through partner networks. The production of both SDG and financing reports along with engagements on these topics, led to ReAct being invited to the panel at the European Public Health Alliance’s event, ‘Invest and Protect: Sustainable financing to tackle AMR’, in Brussels. ReAct focused on explaining why addressing AMR is essential for achieving the SDGs and how AMR must be seen as a development issue, linking to ReAct’s 2018 AMR financing meeting report (funded by Sida, hosted by WHO and Norway, and co-organized by ReAct) to several departments of the European Commission. This led to constructive dialogues with the Commission and contributed to significantly increasing attention to AMR at EU level and among its member states.

ReAct’s engagement with the European Alliance for Responsible R&D and Affordable Medicines led to an invitation to speak at their annual gathering in Brussels in September 2019. With over 60 civil society representatives present, ReAct was part of a two-hour panel discussion on “Global Pharmaceutical Trends and Access to Medicines,” shaping the presentation to enlist and engage this part of the access to medicines movement in issues of antibiotic innovation.

ReAct was encouraged to see Brussels-based CSO allies, European Public Health Alliance and Health Care Without Harm, launch an AMR Stakeholder Network under the auspices of the European Commission’s Global Health Policy Platform and establish a cross-party MEP Interest Group on AMR in the European Parliament.

Following ReAct’s engagement efforts in Brussels, it was encouraging to see that AMR has been made a clearer priority for the new Commission. Their proposal to establish a ‘global agreement on access to and use of antimicrobials’ and renewed efforts to create novel incentives for antibiotic R&D will obviously be something ReAct will follow closely in 2020 and onwards to ensure that LMIC’s needs and perspectives are addressed.

Engaging African regional bodies
In Africa, adding to previous networking efforts and technical expertise, ReAct was active in capacity building and mobilization of regional institutions and CSOs for AMR work. The engagement strategy was based upon a regional stakeholder mapping exercise done in 2019, where results included stakeholders with the following criteria: healthcare providers, networks & coalitions and CSOs who are working in the AMR space from all sectors. The data from this mapping exercise has been valuable in providing a base for updating the AMR Community of Practice that will launch in 2020.
As part of continuous support to regional institutions, ReAct attended and presented at the Africa CDC Workshop on AMR Surveillance hosted in partnership with African Society for Laboratory Medicine in support of the Africa CDC Framework for AMR, in Addis Ababa in April. A technical consultation meeting followed in August to validate the AU’s AMR Framework 2020-2025 with regard to its appropriateness in addressing AMR within the 55 African member states in Africa. ReAct also contributed to a meeting during the WAAW 2019 with African Regional Economic Communities.

ReAct was instrumental in providing technical guidance to Africa CDC in developing IPC minimum standards and guidelines for healthcare facilities within the AU Member States and the Standard Treatment Guidelines for the Pan African Region. These formed the basis to develop a regional IPC policy framework to support implementation of the Africa CDC framework for AMR in AU Member States. ReAct Africa have contributed to the formulation of these major policy documents together with Africa CDC and other stakeholders. The final IPC policy document was presented to the MoHs in the July AU Convention in 2019.

ReAct Africa offered an advisory role for Africa CDC in conducting a survey aimed at gaining insight and identifying areas in which African-based CSOs can help advance implementation of the Africa CDC AMR Framework. ReAct Africa partnered with Africa CDC to host a CSO meeting in December 2019, which was postponed to February 2020.

ReAct Africa has been active in various strategic and technical meetings internationally with the aim to strengthen global and regional collaboration in curbing AMR. The major outcomes from all these engagements include the deepened ReAct-Africa CDC collaboration at regional and sub-regional levels and increasing requests for important tasks in regional strategy and framework development for NAP implementation (such as SADC support, as highlighted under Strategic Objective 1). ReAct Africa also reached out to regional bodies including the AU, Economic Community of West African States (ECOWAS), East African Community (EAC) and it is hopeful that the SADC engagement will be scaled up in the upcoming years.

Project 7. Sustainable AMR financing structures

In 2019, ReAct continued efforts to advocate for accessible funds for implementing NAPs (Strategic Objective 1 & 3), to capitalize on and propel the work from the 2018 AMR financing meeting. This is linked with SDGs, UHC and global governance, as there are several parallels in these work streams. Key messages on AMR financing have advanced, both in the context of the IACG recommendations and over innovative financing approaches for AMR. ReAct continues to emphasise the message that LMICs’ resources must commensurate with measures that they implement on AMR. When the IACG report was presented to the UN Secretary-General, a quote-a-graphic message was used in the UN’s dissemination of the report: a quote-a-graphic message was used in the UN’s dissemination of the report’: ‘The choice is clear:
we can pay now to address antimicrobial resistance – or pay much more later.’

ReAct consistently stated during IACG deliberations that: 1) overseas development aid did not provide sufficient financing, particularly in middle-income countries, that could be repurposed from other health activities directed to AMR; 2) existing AMR-sensitive interventions, from vaccination to water, sanitation and hygiene (WASH) efforts, could contribute measurably to curbing AMR; and 3) new financing is needed, but could draw from expenses now devoted to paying for drug-resistant infections. These three buckets of financing for NAPs were noted in regional presentations at both ReAct Africa-South Centre’s AMR meeting in Nairobi and at the Third World Network-South Centre’s regional meeting in Penang.

ReAct’s general approach is to regularly follow the external situation scoping for potential opportunities and flagging gaps, inconsistencies or inaction. This process includes regular engagement with WHO, other UN agencies and actors to determine how ReAct could have a meaningful impact for pushing forward AMR financing discussions. Since this is heavily dependent on the global community, the policy landscape on AMR financing, i.e. in relation to the IACG recommendations and global governance, required readjustments to originally planned expectations and work activities. For instance, ReAct planned to analyze the World Bank Investment Framework on AMR, scheduled for 2019 publication. However, this framework was postponed and the World Bank instead released an AMR report that did not require further analyses. ReAct shifted focus on the IACG recommendations and Tripartite’s work in AMR financing, including the establishment of a Multi Partner Trust Fund (MPTF) on AMR, continuing to use messaging from the finance report and integrating them into communication outputs throughout the year.

ReAct continued to make the links between the SDGs and AMR, where finance for development is a major component to promote messaging around AMR finance. ReAct launched a report on the SDGs and AMR in February 2019 together with DHF. The report was shared, featured in and commented on in leading newsletters and websites (e.g. Center for Infectious Disease Research and Policy (CIDRAP), AMR Insights, WHO NAP Community of Practice, International Health Policy Newsletter, SDG Knowledge Hub, Forbes). The report was also sent to the Permanent Representatives in Geneva and Rome and received positive feedback from the FAO Permanent Representatives of Zimbabwe and the Nordic countries, in addition to other actors mentioned previously in this report. This SDG report, together with the finance meeting report, was used to engage with country officials and UN country missions in New York, Geneva and Rome to advocate for AMR as a development issue that needs investments on developing stronger systems for healthcare, agriculture and food production. ReAct co-organized an event at the WHA on SDGs and AMR with DHF, hosted by UNAIDS.
A public health driven and end-to-end approach to innovation that enables sustainable access to effective antibiotics in LMICs is broadly supported.
Project 8. Social innovation to reduce & rationalize antibiotic use in LMICs

Based on ReAct’s pilot projects on innovative interventions to reduce and rationalize antibiotic use in Latin America, Asia Pacific and Africa, work focused on scaling the Alforja Educativa and conceptualizing public awareness programme for communities and included broader engagements and initiatives contributed to medium- and long-term outcomes under Strategic Objective 4 and linked closely with Strategic Objective 1 & 2.

Alforja Educativa

In Latin America, one major aim for the Alforja Educativa scale-up is to develop a unique, integral and participatory curriculum with a virtual course platform for school teachers. In 2019, a multidisciplinary and inter-institutional regional team was formed to discuss methodology, select themes and content, develop programs and form six modules of the Virtual introductory training course in bacterial resistance with a focus on Mother Earth, One Health, School Health and Microbial World for basic-level teachers. The curriculum design workshop was a collaborative effort co-organized by ReAct and the School of Medicine of the National University of Mar del Plata, convening a multidisciplinary team of medicine, microbiology, nutrition and education professionals from Argentina, Bolivia, Ecuador and the US. This first version will be reviewed by a wider group of experts and the online course is expected to be launched in late 2020. In 2019, ReAct also signed a framework agreement with the National University of Mar del Plata, which agreed to grant academic endorsement and hosting of the virtual course on its web platform from 2020.

In 2019, ReAct’s influence grew through the integration and mobilization of the ‘Minga por la Alforja Educativa’ network in Latin America. The first ‘Minga por la Alforja Educativa’ meeting was held in June in Puno, Peru, with the participation from delegates from Argentina, Bolivia, Colombia, Ecuador, Peru and Mexico. The meeting served multiple purposes including training, networking, exchange of experiences and lessons in the Alforja implementation as well as communication and messaging of Alforja while touring around the Latin American countries. Inter-institutional proposals to expand the network and alliances with governmental education agencies were made, and included attaching the initiative ‘Our School Garden and Microbial World’ to the curriculum of the Community Health Program run by the Ministry of Education in the Formosa Province of Argentina.

ReAct further enriched communication materials in various formats, including interviews, articles, books and videos, e.g. ‘Counting and Painting the Invisible World of Bacteria’, ‘Inhabitants of Yogurt: The Microbial World at the Initial Level’, ‘Voices of the Smallest’, illustrating children’s thoughts about Mother Earth, health and the future they want to live in.

In Africa, ReAct Africa adapted the Latin America model and initiated an Alforja pilot in Kisumu and Maya Counties in Kenya. The pilot in Kenya came from two core components of Kenya’s National Action Plan on Prevention and Containment of AMR: 1) ‘to Improve Awareness and understanding of AMR through effective communication, education and training’ and 2) the communication strategy to include antimicrobial use and resistance in school curricula. ReAct identified gaps of interventions to create awareness of AMR for school children in Kenya and adapted the Alforja Child-to-Child methodology to the Kenyan context. The project targeted four schools with 1,000 children, 800 households and eight community health workers and received very positive feedback. ReAct Africa conducted a main activity for Toilet Day in November during WAAW with over 200 participants. Population-specific IEC materials were distributed to the children and community members and 186 Alforja guide booklets were distributed to members of the community at the WAAW/Toilet day event. With its initial engagement, the Alforja pilot had sparked the children’s interests and confidence in advocating for proper antibiotic use to their peers, parents and communities at large. An example was given from Migosi Primary school where the pupils insisted that the health club teacher advise the parents of sick schoolmates to ensure that they
are taken to health facilities for diagnosis and return with a health practitioner’s note, rather than simply buying antibiotics from the community pharmacies. Teachers and county health workers viewed the Alfarja guide as child-friendly and easy to work with, pending a few areas for revision to optimally reflect both the urban and rural Kenyan context.

**Antibiotic Smart Communities**

In India, the focus was on developing a conceptual framework to find the contours of a ‘smart community’ and evaluate how to measure it objectively. Three workshops were held - one for public health experts, one for agriculture/veterinary professionals and one for environment/development experts. At these workshops, existing initiatives which could affect the various drivers of resistance were identified. A prioritization exercise for the SDG indicators, regarding their appropriateness for smart communities, was also conducted. The projects and the workshops have been successful in creating a large pool of local experts on AMR and created a layer of accountability in the implementation process of the Kerala Antimicrobial Resistance Strategic Action Plan. The collective knowledge base created through this project has been effective in increasing general understanding of how to communicate the A&R issue to the general public and the right methodology for engaging the local self-government institutions.

**ReAct’s position** that AMR is a development issue and antibiotics should be seen as public goods, was conveyed to the workshop participants. A major part of the workshop with public health professionals was devoted to discussion about how to effectively engage communities on action on AMR. Several public health initiatives have been successful through effective co-opting of communities and participants wanted to see whether any cross-learning is possible. The workshop debated the kind of competence expected from the general public and local self-government representatives. The second workshop for environment and development experts discussed various drivers for environmental contamination with antibiotics and the possible solutions. It was accepted that the data available in the public domain is scant and there are no reasonable standards for no-effect concentrations. Similarly, the current sewage treatment systems do not account for antibiotic residues or antibiotic resistant genes. There is an acute need to map the sources of antibiotics in the environment and implement feasible containment strategies. The workshop later discussed the impact of AMR on human and economic development. Some participants thought that highlighting the potential economic impact of AMR can help to mainstream the issue and channel more funds into this domain. The third workshop with agriculture professionals and food safety organizations raised core questions on the use of antibiotics in agriculture operations and intensification processes followed in modern food production. The meeting included the need for investing in smallholder agriculture for achieving food security - the process includes defining smallholder farms, provisioning for the domestic market, increasing food resilience and a social security net.

**ReAct continued** to engage the identified communities for the piloting process through innovative methods like an antibiotic take-back campaign and throat self-examination devices. The antibiotic take-back campaign involved placing boxes for return of unused or expired medicines at strategic locations; and its safe disposal using the biomedical...
waste management system of a large hospital. Subsequently, the state government and the All Kerala Chemists and Druggists Association started a similar initiative titled, Programme on Removal of Unused Drugs (PROUD). Collection kiosks were placed at selected pharmacies to dispose of medicines and the public was informed about it through IEC material. Though the initiative is very localized, it has managed to collect over five tonnes of medicines to date. The throat self-examination devices were installed at a few clinics and retail pharmacies, to facilitate the patients to examine their own throat and gauge the severity of the infection. This was done to sensitize them about the issue of over-the-counter misuse of antibiotics. These interventions were implemented as experiments to assess the various behavior change strategies that have been successfully used in other geographical contexts (Thailand) and to assess the feasibility of success in local settings.

Throughout 2019, ReAct set the stage for the development of indicators and to start the designing process for toolkits to be published. A strong relationship with the community has been established and has the potential to translate into robust information gathering in the future. The lack of a comprehensive evidence base to take action on the environmental dimensions of AMR has been highlighted through the workshops and was funneled to the Pollution Control Board (the statutory agency for environment protection) for further action and funding. The meetings held as a part of the project helped to create allies within wider civil society circles and were viewed as successful in that some groups have included AMR as a part of their agenda. The initial proposal on indicator development was discussed and revised during the ReAct Annual Meeting in October 2019 and the adjusted approach will be carried out in 2020.

Project 9. Policy Innovation to reduce & rationalize antibiotic use in LMICs

The bankruptcy of several pharmaceutical companies involved in the field of antibiotic development throughout the year, gave renewed strength to the pharmaceutical industry’s pressure on governments to create large scale incentives for them to remain in the field. The need for an alternative public health-driven R&D approaches that serve the public’s interest has never been greater – including securing affordable access for everyone in need. Out-of-pocket payments for medical care in many countries remains a key factor, which drives people into poverty. The World Bank estimates that AMR risks could push an additional 28 million people into extreme poverty by 2050, with an overall cost to the global economy of $1 trillion USD per year.

In response, ReAct has advocated for the uptake of the principle of sustainable and affordable access to antibiotics for everyone in need towards a number of relevant policy venues and actors. These include the WHO, GARDP, the European Investment Bank, the Novo Repair Fund, Combating Antibiotic Resistant Bacteria (CARB-X), the European Commission and the Wellcome Trust. ReAct participated and presented in several conferences dedicated in whole or part to developing new approaches to R&D and access such as the European Alliance for Affordable Medicines annual conference, the Biocom AMR Conference and India’s World Conference on Access to Medical Products (co-organized by WHO SEARO and the Government of India). At the Duke Margolis Center, ReAct gave an invited presentation that used the lens of antibiotic innovation as a way to discuss the high prices commanded by first-in-class antibiotics and the need for an end-to-end approach to sustainable antibiotics. In May 2019, ReAct presented at the Association of American Healthcare Journalists conference panel on a “Future without Antibiotics” showing that the low returns on investment on antibiotics, in part, results from the high withdrawal rate of me-too antibiotics from the marketplace, and flagging the need to consider alternatives to antibiotics as well. For that meeting, a companion website featuring potential story ideas for journalists to consider were developed.

Other examples include a workshop organised by GARDP in collaboration with the Medicines Patent Pool and the WHO titled “Delivering on the sustainable access of antibiotics: moving from principles to practice”, gathering more than 50 experts. The Director of ReAct Europe, Anna Zorzet, was invited to speak on the final panel on sustainable financing of novel antibiotics where her intervention was strongly endorsed by the Director of the MSF Access campaign. A suggestion by Anna Zorzet during the workshop to introduce a “forgotten antibiotic” (i.e., an critical, off-patent drug that is not registered) into a LMIC as a way to investigate how to strengthen health systems to manage new antibiotics in a sustainable manner, gained interest from a representative of the French MOH, funders, and has since been echoed by GARDP at, for instance, the World Health Summit in Berlin in October 2019.

During the 2019 WHA, ReAct co-signed support for a R&D transparency resolution alongside other CSOs.
ReAct also continued work on rethinking how public sector financing might better enable antibiotic innovation. For a presentation at the 2019 World Conference on Access to Medical Products, ReAct introduced two new areas in development: 1) pooled procurement that might both ensure stable demand for drug manufacturers and affordable prices for patients in need; and 2) a framework for analyzing reimbursement approaches that are now emerging and being piloted in the US, UK and Sweden.

ReAct was active in the open consultations on the draft recommendations of the IACG held in Geneva and Rome, in a web consultation between ARC and the Tripartite, as well as through the membership of Anthony So and Otto Cars in the group. Initially the concept of delinkage (the key principle of separating drug company returns on investment from volume-based sales of antibiotics) was neglected, but a concerted effort in the public consultation process resulted in its inclusion in the final IACG report. ReAct was pleased to see the IACG emphasising affordable and equitable access and close alignment with the 2016 UN political declaration on AMR including the principle of delinkage. The final report also mentioned new approaches to re-shape the innovation ecosystem, pooled procurement and greater government ownership over antibiotic manufacturing. The open letter (mentioned previously, sent to all country missions in Geneva, New York and Rome) also emphasized the importance of these points.

The ARC annual Strategy Meeting focused joint civil society efforts on issues of delinkage and sustainable access. Following the meeting, a succession of follow-up teleconference calls to discuss issues of shared concern, included the following: 1) access and stewardship conditions in funder agreements with grantees (e.g., CARB-X); 2) transparency of such agreements and transparency of R&D costs, intellectual property and price; 3) march-in rights under such agreements; and 4) new investment vehicles like the European Investment Bank. A review of existing agreements that introduce terms and conditions for development, stewardship and access to new medicines has been initiated as well as an analysis of reimbursement models being piloted in the UK and Sweden.

ReAct continued advocacy towards the WHO Development and Stewardship Framework process during the WHO Executive Board meeting in Jan 2019 in Geneva. Despite these efforts, overall lack of engagement from Member States meant the process did not advance during the first half of 2019. During the WHA, it was communicated that the process and scope should be adjusted, considering the work of the IACG. It is yet unclear what such adjustments will entail.

In July 2019, ReAct responded to the call by twelve multilateral agencies to develop a Global Action Plan on SDG 3. An intervention was submitted on Accelerator Discussion Paper 5 (Research and Development, Innovation and Access) in which the case was made that all four goals (access, better coordination of research priorities, national voices, and a more optimized innovation system) should be addressed in responding to the challenge of antibiotic innovation.

Finally, ReAct published a policy brief, ‘Public health principles to ensure sustainable access to novel antibiotics,’ in October 2019 that outlines the core principles which should guide the establishment of a public-health driven model for development, stewardship and access to new antibiotics. The brief received a lot of interest and feedback from actors within WHO, GARDP and the UK National Institute for Health and Care Excellence (NICE) as well as a further dialogue with the Wellcome Trust. This shows the need for actors, such as ReAct, to continue the exploration of novel public models to ensure sustainable and affordable access to new antibiotics.

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